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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,718

01/07/2005

Tsutomu Katayama

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EXAMINER

CHIMIAK, EMILY ANN

ART UNIT

PAPER NUMBER

1733

MAIL DATE

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/520,718

Applicant(s)

KATAYAMA ET AL.

Examiner

Emily Chimiak

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 7-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 01/07/2005 and 05/27/2005.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5-8, 10, 11 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Savitski et al (US 6596122).

As to claim 1, Savitski et al discloses a method of joining pipe-shaped articles comprising:

butting pipe-shaped pieces 20 and 30 through a fitting comprising a resin member 42 in one embodiment, while disposing a laser light absorber between the end parts of the pipe-shaped articles

at least one end part of the pipe-shaped articles or the flange or fitting comprising a resin member with a transparency to laser light

at least one end part of the pipe-shaped articles or the flange, fitting or laser light absorber comprising a resin member with an absorbency for laser light, and

irradiating laser light on a portion contacted by the end part of the pipe-shaped articles, thereby laser welding them (col. 3 lines 30-67 and col. 4 lines 1-20 and col. 7 lines 19-20 and 35-55).

Art Unit: 1733

As to claim 2, (A) a pipe-shaped article comprising a resin member having absorbency for laser is inserted into a fitting comprising a resin member having transparency to laser light, and laser light is irradiated from said fitting side, thereby laser-welding the pipe-shaped article and the fitting (Figure 4, col. 3 lines 30-67 and col. 4 lines 1-20 and col. 7 lines 19-20 and 35-55). As to claim 5, the pipe-shaped articles comprise an outer layer comprising a resin member having absorbency for laser light and an inner layer comprising a resin member having transparency to laser light in one embodiment (col. 10 lines 59-63). As to claim 6, the thickness of the outer layer is 10 to 250 micrometers (col. 8 lines 32-35). As to claim 7, the laser light absorber is a pigment (colorant) in one embodiment (col. 8 lines 6-8). As to claim 8, the light absorber is a film comprising a resin member containing a colorant, wherein the film is 10-250 micrometers thick (col. 8 lines 32-33). As to claims 10 and 11 Savatski et al. discloses that additives in transmitting material 42 which forms fitting 40 do not absorb appreciable quantities of electromagnetic radiation 12, i.e. transmitting material 42 comprises a resin member that is weakly absorbing and the additive is weakly absorbing. As to claim 14, melting only occurs at interfaces 50a, 50 b and 50c (col. 11 line 7). As to claim 15, the resin member constituting the pipe-shaped article and fitting comprises nylon in one embodiment (col. 7 lines 40-44 and 49). As to claim 16, the pipe-shaped article is a chemical liquid transporting pipe (col. 2 lines 56-59).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1733

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savitski et al. as applied to claim 1 above, and further in view of Wise (US 3788928).

Savitski et al. discloses (C) that the end parts of pipe-shaped articles comprising a resin member having transparency to laser light are butted together through an internal coupling (fitting) comprising a resin member having absorbance for laser light while applying a lateral pressure, and laser light is irradiated from the end part sides of the pipe-shaped articles, thereby laser-welding the end parts (col. 10 lines 23-24 and col. 11 lines 41-67). Savitski et al. does not disclose that the fitting is in the form of a flange. However, Wise teaches that sleeve 26 includes flange 28 in order to facilitate the positioning of the reinforcing sleeve, i.e. fitting in a lap-welding process to adhere thermoplastic tubular articles under pressure using any suitable heating source (col. 2 lines 35-45, col. 3 line 4 and col. 4 lines 39-40). It would have been obvious to one of ordinary skill at the time of invention to use a flange as taught by Wise to facilitate the positioning of the sleeve in the method disclosed by Savitski et al.

Art Unit: 1733

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savitski et al. as applied to claim 1 above, and further in view of Kistenich et al. (US 482305).

As to claim 4, Savitski et al. discloses one resin member having transparency to light and the other resin member having absorbency for laser light, abutting the members together and irradiating laser light from the first pipe shaped article side (col. 7 lines 35-50 and col. 8 lines 12-15) but does not disclose (G) the inner surface of the end part having a tapered joining face and the outer surface of the end part having a tapered joining face matching the tapered joining face of the end part of said first pipe-shaped article. However, Kistenich et al. teaches joining tapered end 5a of pipe 5 to tapered end 6a of pipe 6 in order to produce a dense and economical joint (col. 2 lines 18-19 and 23-26 and col. 3 lines 48-53). It would have been obvious at the time of invention to one of ordinary skill in the art to create a tapered joint as taught by Kistenich et al. instead of providing a separate sleeve as taught by Savitski et al. in order to provide a clearance-free interference fit.

7. Claims 2, and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beal et al. (US 6616191) in view of Savitski et al.

As to claim 2, Beal et al. discloses butt fusion of two pipe-shaped articles through a tube (a fitting) wherein the pipe-shaped article comprising a resin is inserted into a fitting comprises polyamide, i.e. a resin member having transparency to laser light (col. 1 lines 7-8 and col. 6 lines 1-6). Beal et al. does not disclose the pipe-shaped article comprising a resin member having absorbency for laser or irradiating laser light from the fitting side, thereby laser-welding the pipe-shaped article and the fitting. However, Savitski et al. discloses including an absorbing

Art Unit: 1733

material into one or more round pipes to be joined and laser-welding the pipe-shaped article and the fitting to allow visual inspection and avoid weak joints caused by uneven adhesive application (col. 4 lines 23-27 and col. 7 lines 12-15). It is noted that Beal et al. discloses using adhesives (col. 6 lines 7-8). It would have been obvious to one of ordinary skill in the art at the time of invention to laser weld the pipes and fitting disclosed by Beal et al. as taught by Savitski et al. to make a doubly secure and strong joint with no defects in the butt weld interface.

As to claim 10, the first pipe-shaped article, fitting or flange disclosed by Beal et al. comprises copolymers of ethylene, i.e. a resin member having weak absorbency for laser light (col. 3 line 9-10 and 35-38 and col. 6 line 4).

As to claim 11-13, the resin member comprises polyamide (resin) and copolymers of ethylene, i.e. an additive selected from the list of claim 13 that has a transmittance of 40 to 90% for laser light (col. 3 line 9-10 and 35-38 and col. 6 line 4).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Chimiak whose telephone number is (571)272-6486. The examiner can normally be reached on Monday-Friday 8:30-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571)272-6486. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1733

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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